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ABSTRACT

The relationship between student, course, and instructor characteristics and the ratings 283 hearing impaired students gave their instructors and courses at the National Technical Institute for the Deaf were examined. A previously field tested instrument containing 30 items divided into five subscales (practical gain, teacher personality, difficulty, teacher skill, and personal gain) and an overall dimension was administered to each S. Results indicated that lower faculty rank, smaller class size, greater student effort, and higher expected grades were each associated with more positive overall ratings of courses. Results were consistent with findings reported for hearing counterparts. (CL)

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The Relationship Between Course, Instructor, and Student Characteristics and Hearing Impaired Students' Ratings of Instruction

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Abstract

This study examined the relationship between student, course and instructor characteristics and the ratings hearing impaired students gave their instructors and courses. Data from a large scale administration of a previously field tested instrument were subjected to a variety of correlational analyses. Results yielded useful information for instructors when they use student ratings for course modification and for researchers as they develop norms for student ratings of instruction forms used in programs for the hearing impaired.

The Relationship Between Course, Instructor, and Student Characteristics and Hearing Impaired Students' Ratings of Instruction

This study was guided by a question that arose out of efforts to evaluate courses and newly developed instructional materials at the National Technical Institute for the Deaf. The study addressed the question: "What are the factors that can influence the favorability of students' views of instructors and courses?" Specifically, what is the relationship between student, course, and instructor background variables on student ratings of instruction?

In spite of the widespread use of student ratings of instruction as one measure of faculty and/or course effectiveness, there is often the concern that such ratings lack validity and are adversely affected by variables that are not directly related to the quality of instruction. Although this question has been extensively examined in the literature concerned with hearing students' ratings of instruction, no study published to date has examined this question with deaf students.

There are several recent literature reviews which comprehensively cover student, instructor, and class characteristics as they relate to student ratings of instruction completed by hearing students (see, for example,: Costin, Greenough and Menges, 1971; Holzemer, 1975). These literature reviews conclude that the only student variable that consistently appears to influence student ratings of instruction is student class. Upperclassmen give slightly higher ratings to all their courses than do freshmen or sophomores, and graduate students give higher ratings than undergraduates.

Table 1 briefly summarizes the findings of several studies concerned with some of the most commonly mentioned student, instructor, and class variables and the relationship of these variables to student ratings of instruction.

No instructor variable appears to consistently influence student ratings of instruction, although associate professors have occasionally been shown to receive higher ratings than either assistant professors or full professors.

Although there are a few exceptions, most investigators have found that teachers of large classes receive lower ratings than do teachers of small classes. Wood, Linsky and Straus (1974) found that after classes reached a certain size (250) ratings began to be more positive again. The one class variable (other than size) that appears to influence student ratings is the method of instruction. Teachers of seminars receive more favorable ratings than do teachers of lecture classes, and students appear to give higher ratings to discussion.

In addition to the variables reported in Table 1, no significant relationship was found between student ratings of instruction and students' popularity, out-of-class activities, amount of student employment, or number of academic hours carried. In general, the majority of student and faculty variables commonly examined in the literature do not appear to influence student ratings of instruction.

However, all of the previously cited studies have been concerned with hearing students and their ratings of instruction. We do not as yet know if the same situation is true for hearing impaired students.

TABLE 1

FINDINGS OF THE RESEARCH ON STUDENT RATINGS OF INSTRUCTION AND SELECTED STUDENT, TEACHER, AND COURSE CHARACTERISTICS

Variable	Findings of previous research	Sources*
Student Sex	There appears to be an interaction between student sex and ratings on some of the factors of many rating forms but not all factors. Results are mixed, with several studies reporting no difference in ratings due to student sex.	Goodhartz, 1958, Isaacson et al., 1964; Carney & McKeachie, 1966; McKeachie, Lin, and Mann, 1971; Elmore & LaPointe, 1974.
Student G.P.A.	The majority of studies found no relationship between student ratings of instruction and students' grade point average.	Holzemer, 1975.
Course Grade	About half of the studies reviewed found a mildly positive correlation between grade received in a course and student ratings of the course, the other half of the studies showed no significant correlation.	Anikeef, 1953; Weaver, 1960; Costin, Greenough and Menges, 1971.
Expected Grade	Several studies reported a mildly positive correlation between expected grade in a course and student ratings of that course. Other studies found that disconfirmed expectations (receiving lower or higher grades than expected) tended to influence ratings more than expected grade.	Stewart and Malpass, 1966; Holmes, 1972; Kennedy, 1975.
Student Class	The majority of studies support the conclusion that upperclassmen give slightly higher ratings than freshmen or sophomores, and graduate students give higher ratings than undergraduate students.	Remmers and Elliot, 1949; Gage, 1961; McKeachie, 1969; Frey, Leonard, and Beatty, 1975.
Student Psychological Needs	Student needs (intellectual striving, gregariousness, dependency, control, and ascendency) were shown to have a mild affect on student ratings in two studies and no effect in two other studies. Mixed results were found in still other studies with some needs appearing to affect ratings.	Rezler, 1965; Walker, 1968.
Student Personality Variables	The majority of studies found limited or no evidence of the influence of student personality variables on ratings of instruction. Two studies found some evidence that student personality variables may affect their ratings.	Lewis, 1964; Doty, 1967; Follman, 1975.
Faculty Sex	Most studies have found conflicting results. In two studies, female faculty appeared to receive slightly higher ratings.	Elliott, 1950; Downie, 1952; Spencer, 1969.
Faculty Age	There appears to be a slight decrease in mean student ratings due to age of faculty.	Riley et al., 1950; Downie, 1952.
Instructor Rank	The relationship between instructor rank and student ratings appears curvilinear with the rank of associate professor receiving the highest ratings.	Gage, 1961; Holzemer, 1975.
Faculty Research	The relationship between faculty research and student ratings appears negligible. When a significant relationship was found it was almost always mildly positive.	Stalling and Singhal, 1974; Mazlow and Zimmerman, 1975.
Faculty Personality Variables	A mild interaction between faculty personality variables and student ratings was found in several studies.	Isaacson, McKeachie, and Milholland, 1963; Sorey, 1968.
Method of Instruction	Method of instruction appears to have a slight effect on ratings, with higher ratings going to teachers of seminars than to teachers of lectures.	Hildebrand, Wilson, and Dienst, 1971; Bausell and Magoon, 1972.
Department or Discipline in which course is offered	The results of ratings across disciplines are ambiguous. Most studies found no relationship between department or discipline and ratings, a few studies found some interaction.	Gage, 1961; Rayder, 1968; Hildebrand, Wilson, and Dienst, 1971.
Student Achievement	The majority of studies have reported mildly positive correlations between student achievement and ratings of instructions. However, some studies have reported no relationship and at least one study reported a negative relationship.	Rosenshine, 1971; McKeachie, et al., 1971; Costin, Greenough and Menges, 1973.

*Sources are representative, not comprehensive. Some sources are included because they contain good literature reviews.

Methodology

Development of Instrument

A student rating of instruction instrument was developed especially for use with hearing impaired students at the National Technical Institute for the Deaf. The instrument was carefully designed to take into account the particular linguistic needs of hearing impaired post-secondary students. After several pilot tests and a large scale field test involving over 700 students, the final version of the instrument was completed. This final version contains thirty items equally divided into five subscales, plus three items comprising an "overall" dimension, for a total of thirty-three items.

The five subscales are labeled: Practical Gain; Teacher Personality; Difficulty; Teacher Skill; and Personal Gain. The overall dimension contains three items of the type, "I would recommend this course to my friends." Factor scale scores based on a sum of the items comprising each dimension are calculated by a computer program specially designed to score this instrument. The computer program is also used to summarize and report total class results back to the instructors. Internal consistency reliability estimates of the five subscales and the overall dimension range from .75 to .85.

Subjects

The subjects participating in the study were all NTID students enrolled in NTID classes. Two-hundred and eighty-three students in 40 classes were included in the data analysis. All four of the major career areas at NTID were represented and 14% of the subjects were cross-registered in RIT majors. Slightly over half the participants were first- and second-year students, the remainder third or fourth year (or more). The students were evenly divided in terms of sex. Chi-Square comparisons indicated that the students participating in this study were representative of the total NTID student population on the

demographic variables of sex, year of entry, and percent of cross-registered students. Approximately 65% of the students were in classes that were required for their major program. The students were asked what grade they expect to receive in the course and 35% indicated they expect an "A", 44% a "B", 17% a "C", and 4% a "D" or an "F".

Procedure

All NTID faculty were notified of the availability of the NTID-Instructional Rating Survey (IRS) through a mass mailing that included a cover letter, a copy of the instrument, and sign up sheets (copies of all three are appended). Participation was strictly on a voluntary basis. When the faculty members returned the completed sign up sheets, they were provided with an appropriate number of IRS forms on the requested date. These forms were then returned to the principal investigators for scoring. Faculty were provided with class summaries of their students' responses by items and dimensions. Included on either the instructor sign-up sheet or the instrument itself were questions that allowed us to collect the following information.

Student Characteristics	Course Characteristics	Instructor Characteristics
Year in School	Type of Course	Rank
Age	Time of Day	Years Experience
Sex	Class Size	Sex
Required or Elective		Number of times course has been taught
Perceived Effort in Course		Preferred teaching mode
Expected Grade		Feelings about the course
		Decision making concerning the course
		Desire to teach course again
		Perceived student effort in course

The student characteristics were all obtained from the cover sheet of the IRS questionnaire. The course and instructor characteristics were all obtained from the sign up sheet (see appendix for exact wording of items).

Analyses and Results

Simple correlations among the instructor, course, and student characteristics and the rating subscales are reported in Table 2. Since so many coefficients were calculated, interpretations will be made only in terms of those exceeding the .01 level of significance. However, all are reported for the sake of completeness. Correlations of each of the rating components will be discussed in turn.

Practical Gain

Lower rank, fewer years teaching, a preference for a lecture format, and fewer motivated students are instructor variables associated with student's ratings of practical gain. Of the course variables, class size was the only significant correlate, with fewer students associated with greater practical gain. Effort was the only student variable related at this level of significance. Of the six significant correlates of practical gain, the most potent were lower faculty rank (-.33), smaller class size (-.39), and greater student effort in the course (.40).

Teacher Personality

None of the instructor or course variables were related to ratings of teacher personality. Student effort in the course and expected grade, however, both correlated significantly with teacher personality.

Difficulty

Lower rank, a preference for a lecture format, and fewer motivated students were instructor variables associated with a higher perceived difficulty. Smaller classes were associated with greater difficulty. Higher

Table 2

Simple Correlations Between Instructor, Course, and

Student Characteristics and Rating Subscales (N = 201)

		Rating Subscales					
		Practical Gain	Instructor Personality	Difficulty	Teacher Skill	Personal Gain	Overall
Instructor Variables	Sex	-.05	-.14*	.17*	-.12	--	-.01
	Rank	-.33**	-.05	-.11**	-.09	-.26**	-.19**
	Number	-.21**	-.02	.02	-.13	-.19*	-.15*
	Number Times This Course	-.05	-.02	-.03	-.11	.13	-.08
	Preferred Teaching Activity	-.19**	.01	-.23**	.09	-.08	.03
	Feel About This Course	.06	.10	.03	-.03	.12	.03
	Course Decision Making	.13	-.05	.12	-.08	.24**	.09
	This Course Again?	.07	--	-.01	-.14*	.05	.05
	% Motivated Students	-.22**	-.04	-.33**	--	-.07	.07
Course Variables	Type of Course	-.13	-.02	--	.02	-.20**	-.06
	Time of Day	-.03	.08	-.14*	.04	.12	-.04
	Class Size	-.39**	-.17*	-.29**	-.17*	-.33**	-.20**
Student Variables	Year in School (NTID)	-.08	-.08	-.11	-.09	-.12	.04
	Age	-.15*	-.11	-.07	-.09	-.14*	-.16*
	Sex	.10	.07	.04	--	.09	.05
	Required/Elective	.11	.08	.17*	.04	-.07	-.02
	Effort in Course	.40**	.18**	.31**	.12	.32**	.25**
	Expected Grade	.09	.20**	-.37**	.25**	.15*	.23**

* $p < .05$

**$p < .01$ (two-tailed tests)

perceived effort in the course and lower expected grades were associated with ratings of difficulty.

Teacher Skill

This rating subscale correlated significantly with just one variable, expected grade.

Personal Gain

Students indicated greater personal gain for lower ranking teachers who made more decisions about the course. Other than a lecture/discussion format (e.g., labs) and smaller class sizes were associated with personal gain. Student effort was positively related with personal gain.

Overall

Lower faculty rank, smaller class size, greater student effort, and higher expected grades were each associated with more positive overall ratings of courses.

The overall subscale, which had been previously shown to subsume the five component subscales, was then employed to reduce the number of characteristics for a subsequent canonical analysis with the rating components. The overall rating score was stepwise regressed on to the set of instructor, course, and student variables. Table 3 summarizes the results. These nine variables (shown) and faculty rank were then employed in a canonical correlation analysis with the set of rating components. Those results revealed that the first three which had stepped into the regression (reported in Table 3) and faculty rank were the best predictors of the component rating scores. The canonical analysis was repeated with this refined set of four variables, and is reported in Table 4.

As is shown, two canonical variables were significant ($p < .01$). The loadings are consistent with the univariate results (simple correlations) reported in Table 2. The first canonical variate indicates that, analyzed

Table 5

Summary of Stepwise Multiple Regression

of Overall Rating Score on to All Predictor Variables (N = 201)

Step Number	Variable Entered	Multiple R	Multiple R^2	Increase in R^2	F-TO-ENTER*
1	Student Effort	.252	.06	.06	13.49
2	Expected Grade	.346	.12	.06	12.60
3	Class Size	.391	.15	.03	7.72
4	% Motivated Students	.413	.17	.02	4.15
5	Course Type	.423	.18	.01	3.20
6	Year in School	.450	.20	.02	4.50
7	Student Age	.463	.21	.01	2.91
8	Course Decision Making	.472	.22	.01	2.13
9	Class Time of Day	.481	.23	.01	2.01

*$p < .05$ for all Fs (df = 9,191)

Table 4

Summary of Final Canonical Correlation Results

		Canonical Variable 1	Canonical Variable 2
(Instructor) (Course) (Student)	Faculty Rank	-.681	-.097
	Class Size	-.808	-.140
	Student Effort	.770	.030
	Expected Grade	-.247	.923
Rating Subscales	Practical Gain	.827	.445
	Teacher Personality	.347	.543
	Difficulty	.695	-.602
	Teacher Skill	.293	.686
	Personal Gain	.654	.525
	Eigenvalue	.339	.211
	Canonical Correlation	.582	.459
	Chi-Square	160.94	60.80
	Degrees of Freedom	20	12
	Significance	$p < .01$	$p < .01$

as a set, lower faculty rank (-.681), smaller class size (-.808), and greater student effort (.77) are the instructor, course, and student variables associated with student ratings of greater practical gain (.827), greater difficulty (.695), and greater personal gain (.654). The canonical correlation of .582 for this variate summarizes the fit of these variables thusly weighted.

Similarly, the second canonical variable indicates that higher expected grades (.923) were primarily associated with student ratings of low difficulty (-.602) and high teacher skill (.686), although modest loadings are shown for the other rating subscales. The saliency of the low difficulty ratings is shown by its opposite loading on the second canonical variate. The canonical correlation of .459 summarizes the fit of the variables thusly weighted.

Discussion and Implications

The results are consistent with findings reported for hearing counterparts. Variations observed in the current study are similar to differences among those studies summarized in Table 1. This implies that the voluminous body of pertinent findings from studies using hearing counterparts is useful for the hearing impaired.

These findings also provide evidence in support of the validity of the rating scores obtained. While the factor structure and reliability of the ratings was known, the validity was previously untested. The rating scores are indicated as valid since significant, interpretable correlations with instructor, course, and student variables which were consistent with previous findings have been demonstrated.

It is hoped that these findings, which indicate some of the instructor, course, and student variables which moderate student's ratings of instruction, are useful to instructors and researchers of the hearing impaired.

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